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LONGITUDINALLY ADJUSTABLE  
MOUNT FOR A SNOWBOARD BINDING

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1           This application is a continuation-in-part of the  
2   application filed December 2, 1998 under Serial No.  
3   09/205,240 which is a continuation-in-part of the  
4   application filed July 28, 1997 under Serial No. 08/901,387,  
5   now U. S. Patent No. 6,015,161.

6   BACKGROUND OF THE INVENTION

7   The field of the invention is adjustable mounts for  
8   snowboard bindings.

9           Snowboarding is a sport wherein a person uses a  
10   snowboard for recreational travel down a snow-covered  
11   inclined surface. A mount fastens a binding to the  
12   snowboard. The popularity of snowboarding is growing all  
13   over the world. Snowboarding is beginning to rival skiing  
14   as a recreational sport. While snowboarding a person stands  
15   on the snowboard with both feet and his body angled to the

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1 longitudinal axis of the snowboard.

2       The Revelation snowboard has two sets of two parallel  
3 tracks and two sets of four T-nuts. Each set of the four T-  
4 nuts float within one of the two sets of the two parallel  
5 tracks and mechanically couples one of two bindings to one  
6 of the two sets of the two parallel tracks. Revelation has  
7 a trademark, FREEDOM GROOVE, and a patent pending for its  
8 snowboard.

9       U. S. Patent No. 6,089,581 teaches a system which  
10 mounts bindings to a snowboard. The system allows relative  
11 distance between the mounted bindings to be much more  
12 accurately adjusted by the user, making snowboarding mare  
13 enjoyable and safer. The system involves a front and a rear  
14 set of parallel cavities formed on the top surface of a  
15 snowboard. The snowboard accepts nuts. The nuts slide in  
16 each cavity. Each nut receives a corresponding bolt from  
17 the binding to be mounted. The nuts can be easily replaced  
18 if stripped, obviating the need for frequent and expensive

1 repairs to fix stripped nuts, as is common with typical  
2 snowboards.

3 U. S. Patent No. 5,261,698 teaches a binding whose  
4 rotational position relative to an axis perpendicular to a  
5 snowboard can be adjusted. The binding includes a hold-down  
6 plate and a binding base plate. The hold-down plate may be  
7 secured to the snowboard in several different positions on  
8 the board and is fixed to the snowboard by screws extending  
9 through a set of holes in the hold-down plate. The binding  
10 base plate can be rotated relative to the hold-down plate.  
11 The binding base plate and the hold-down plate each have  
12 ribs or ridges, respectively, which lock the angular  
13 position of the binding base plate relative to the hold-down  
14 plate. The rotational position of the binding base plate  
15 can only be adjusted by removing the boot from the binding  
16 base plate and disengaging the screws from the holes in the  
17 hold-down plate. Therefore, angular adjustment of the  
18 binding cannot be done "on the fly". Some bindings permit a

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1 person using a snowboard to adjust their rotational  
2 orientation on the snowboard. Look makes a binding which  
3 includes a circular plate and a foot-bed. The circular  
4 plate is attached to the snowboard by a set of screws. The  
5 screws engage with the snowboard. The foot-bed has a  
6 central aperture for rotatably receiving the circular plate.  
7 A lock assembly locks the foot-bed in a predetermined  
8 rotational position with respect to the circular plate. A  
9 housing, including one or more fasteners, is attached to the  
10 foot-bed for securing a boot to the foot-bed so that the  
11 boot cannot be pulled free of the foot-bed except when the  
12 fasteners are released. A person adjusts the orientation of  
13 the binding at the beginning of the season and often makes  
14 no further adjustments.

15 U. S. Patent No. 5,577,755 teaches a rotatable binding  
16 for a snowboard which includes a base plate and a binding  
17 plate. The base plate is mounted on the snowboard. The  
18 binding plate is rotatably mounted on the base plate. The

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1 rotatable binding also includes a locking assembly. The  
2 locking assembly includes a pin and a foot binding. The  
3 locking assembly selectively locks, at a desired angle of  
4 rotation, the binding plate to the base plate. The base  
5 plate includes an indexing platform and a pedestal. The  
6 pedestal is disposed on the bottom of the base plate. The  
7 indexing platform has a multiplicity of bores arranged in a  
8 circular arc about a central axis. The pedestal has a width  
9 about the width of a human foot and traverses the snowboard  
10 in order to support the indexing platform above the top  
11 surface of the snowboard. The pin does not restrict  
12 rotation of the binding base plate relative to the base  
13 plate and is selectively moveable from a raised position to  
14 a lowered position. The pin engages an indexing bore such  
15 that the binding plate may not rotate relative to the base  
16 plate.

17 U. S. Patent No. 5,028,068 teaches a device which  
18 pivotally mounts a binding on a snowboard on the upper

1 surface thereof. A manually operated handle allows the  
2 binding to be changed in any direction desired and  
3 thereafter with a flip of the handle locked into the  
4 selected position. The binding includes a binding base  
5 plate and a swivel plate. The binding base plate is mounted  
6 on the swivel plate.

7 U. S. Patent No. 5,354,088 teaches a coupling which  
8 releasably mounts a binding to a turntable. The turntable  
9 is adjustably secured to a snowboard.

10 U. S. Patent No. 4,871,337 teaches a snowboard in which  
11 the rider's feet are positionable within bindings which are  
12 formed on first and second riding plates. Each of the first  
13 and second riding plates is positionable above a channel  
14 section. The channel section is formed within a rider  
15 support surface of the riding apparatus. Each riding plate  
16 supports fasteners. The fasteners are releasably engageable  
17 with retaining elements which are installed within the  
18 channel section. After loosening the fasteners from the

1 retaining elements, each of the first and second riding  
2 plates may be repositioned angularly or longitudinally with  
3 respect to its channel section thereby permitting the  
4 snowboard to be used with a variety of stances and leg  
5 spacings.

6 U. S. Patent No. 5,021,017 teaches a water sports board  
7 which has a base formed with rows of detent teeth for  
8 locking engagement with the peripheral teeth of binder  
9 plates. The binder plate may be angularly or longitudinally  
10 adjusted relative to the base. The board also has a pair of  
11 boots that are mounted to the binder plates and mounting  
12 assemblies for mounting the binder plates to the base.

13 Today there exists several kinds of water sports boards  
14 including surfboards, knee-boards, water skis and boards  
15 upon which a rider, towed by a power boat, stands with his  
16 feet spread longitudinally apart upon the board. Some of  
17 these boards, including the last mentioned type to which  
18 this invention particularly pertains, are equipped with foot

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1 bindings to stabilize the rider upon the board and to  
2 enhance his foot control of the board. With this latter  
3 type of board, which has only recently obtained popularity,  
4 the rider positions his feet on the board one behind the  
5 other at a skewed angle with respect to the longitudinal  
6 axis of the board. This posture thus is similar to that  
7 used by surfers on surfboards. Initially these types of  
8 boards were merely equipped with strips of course,  
9 frictional material to provide foot traction. Since they  
10 were pulled in tow behind powerful motor boats riders  
11 quickly found that they were not able to maintain their feet  
12 in position well enough when subjected to strong tow rope  
13 pulling forces. These types of water sports boards are  
14 equipped with foot bindings. Water ski foot bindings  
15 include a toe piece and a heel piece mounted to the top  
16 surface of the ski. One of the pieces is usually adjustable  
17 to accommodate different skier foot sizes and to facilitate  
18 foot entry. These are shown in U. S. Patent No. 2,933,741,



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1 U. S. Patent No. 3,102,279 and U. S. Patent No. 3,127,623.  
2 Water ski bindings have also existed by which the position  
3 of the whole binding for one foot may be repositioned upon  
4 the ski. Exemplary of this type of binding is that shown in  
5 U. S. Patent No. 2,740,972. These water ski bindings  
6 however do not provide for angular foot adjustment since  
7 water skiing is best done with the skier's feet aligned with  
8 the skis. Recently, a board known as a Skurfer has been  
9 equipped with bindings that can be adjusted both  
10 longitudinally and angularly. Its bindings include oblong  
11 plates upon which toe and heel pieces, hereinafter  
12 collectively referred to as "boots", are mounted. The  
13 plates are held in position by threaded posts that extend  
14 through arcuate slots in holding the plates firmly in place  
15 at selected positions upon the board. Though these types of  
16 bindings have permitted both longitudinal and angular  
17 positioning, they have tended to loosen and skew in  
18 operation. Also, their degree of angular adjustment has

1 been limited. It thus is seen that a water sports board of  
2 the type having foot bindings which can be more fully  
3 adjusted rotationally, as well as longitudinally adjusted,  
4 and which may be easily yet securely repositioned, has  
5 remained an elusive goal.

6 U. S. Patent No. 5,433,636 teaches a snowboard having a  
7 channel extending along a portion of the length thereof.

8 Two bindings are secured to the snowboard through the  
9 channel. Each binding may be rotated between a locked  
10 starting position in which the long axis of the binding  
11 extends parallel to the long axis of the snowboard and a  
12 locked skiing position in which the long axis of the binding  
13 extends transversely to the long axis of the snowboard.  
14 After the binding has been rotated to a selected position,  
15 the binding is secured in place by a locking mechanism.  
16 Each binding includes a resilient front strap assembly and a  
17 resilient heel support which secures one of the user's feet  
18 to the binding and permits a user to quickly and easily

1 remove his feet from the bindings in the event of a fall.

2 U. S. Patent 5,584,492 teaches an adjustable snowboard  
3 binding which can be rotatably controlled without the use of  
4 external tools. A boot-mounting platform has a plurality of  
5 inwardly facing radial teeth along the circumference of a  
6 centralized circular cutout. A circumferential lip along  
7 the cutout is used to rotatably mount the platform via  
8 overlapping lipped quadrant segments which are mounted to  
9 the snowboard. Two radially sliding segments have teeth at  
10 their outer ends and are held by the quadrant segments. A  
11 slidable band is mounted by actuating locking levers along  
12 the longitudinal length of the snowboard. The slidable band  
13 has upwardly extending posts. The posts interface with  
14 angled slots formed in each sliding segment. In operation,  
15 the actuating levers are unlocked and the band slides  
16 forwards and backwards to effectuate radial movement of the  
17 sliding segments. This in turn effectuates locking  
18 engagement and disengagement between the radial

1 circumferential teeth and the sliding segment teeth. The  
2 user performs this adjustment operation without removing the  
3 boot from the mounting platform and without loosening  
4 screws.

5 U. S. Patent No. 5,586,779 teaches a binding which  
6 includes a mount-plate. The mount plate is fixedly mounted  
7 to a snowboard. The mount plate has a cavity centrally  
8 defined therein. A ring is fixedly attached to the mount  
9 plate. The mount plate has a bore centrally defined  
10 therethrough. A hub mounts the binding to the snowboard.  
11 The hub is centrally disposed in the cavity and extends  
12 through the bore. The mount plate is free to rotate about  
13 the hub thereby allowing for adjustment of an angular  
14 position of the mount plate. A locking mechanism arrests  
15 and releases rotation of the mount plate thereby allowing  
16 the angular position of the mount plate to be adjusted. A  
17 user may quickly and easily adjust the angular position of  
18 binding relative to the snowboard without removing his boot

1 from the binding.

2 U. S. Patent No. 5,826,910 teaches a swivelable  
3 bindings assembly for use with a snowboard which makes a  
4 selective rotational adjustment of the bindings about an  
5 axis normal to the upper surface of the snowboard and which  
6 includes a rotatably adjustable bindings plate having a  
7 bottom surface, an upper portion adapted for releasably  
8 supporting a user's boot, and a relatively large diameter  
9 circular opening in the central portion of the plate. The  
10 assembly includes a holds-down disk that is received in the  
11 plate opening and is adapted to slidably engage edge  
12 portions of the plate opening to restrain the plate against  
13 upward separation from the disk and to hold the plate with  
14 its bottom surface slidably engaged with, and vertically  
15 supported by, the low-friction planar surface of a sheet of  
16 material secured to the top of the snowboard, the disk also  
17 serving to mount the plate for rotation about an axis  
18 through the center of the disk. Mechanism for releasably

1 locking the plate at selected rotational positions includes  
2 a locking pin with an elongate shaft that engages a  
3 horizontal bore extending from an edge of the base plate to  
4 the base plate opening, the plate being rotatable to bring  
5 the bore in alignment with at least one recess in the outer  
6 edge of the disk whereby the pin shaft can be engaged in a  
7 selected recess to secure the plate against rotation. These  
8 bindings for snowboards can be adjusted with respect to its  
9 angular orientation to the longitudinal centerline of the  
10 snowboard. The recent surge in popularity of the sport of  
11 snowboarding has brought renewed interest in addressing  
12 certain problems that are unique to the sport, as opposed to  
13 other skiing endeavors such as alpine skiing and water  
14 skiing. First, it is noted that according to the  
15 conventional arrangement of bindings on a snowboard, fore  
16 and aft binding assemblies are secured to the board in a  
17 manner to support both feet at a substantial angle with  
18 respect to the longitudinal centerline of the board. This

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1 cross orientation of the bindings allows the user to assume  
2 a side-forward position necessary for optimum control of the  
3 board during active snowboarding. It is also noted that  
4 snowboarders often desire to modify the angle of the feet  
5 relative to the centerline of the board to achieve maximum  
6 performance during their run. Such changes in the angle of  
7 the feet can be necessitated by the degree of incline of the  
8 slope, the amount and quality of the snow encountered, or  
9 the amount of `jumping` desired during descent. When a  
10 down-hill run is completed it is necessary for the user to  
11 use self- propulsion methods to maneuver over flat terrain  
12 and to negotiate the life line and to get in position for  
13 pick up by a lift chair. In order to do this the  
14 snowboarder will commonly release the aft foot from its  
15 bindings so that he or she can use a "skateboarding"  
16 technique in which the free foot is used for propulsion.  
17 Unfortunately, because of the transverse orientation of the  
18 secured foot and the face- forward position that the

1 maneuvering snowboarder tries to assume, the leg is forced  
2 towards an unnatural position causing stress and strain on  
3 the entire leg, including the vulnerable ankle and knee  
4 joints. Of course the snowboarder has the option of  
5 detaching both feet from the board and hand carrying the  
6 board in such circumstances, but such procedure is  
7 inconvenient and time consuming. Furthermore, the cross-  
8 orientation of the bindings can lead to difficulties when  
9 riding the lift chair, requiring the board to be held in an  
10 unwieldy manner that can interfere with a companion lift  
11 chair rider, and also causing stress and strain in the  
12 secured leg of the user. It has become evident that one way  
13 to address these problems would be in providing bindings  
14 that are adjustable with respect to their angular  
15 orientations to the board centerline.

16 World Patent No. 97/03733 teaches a device for  
17 positioning longitudinally a snowboard binding on a  
18 snowboard. The snowboard binding includes a binding plate.



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1 A rail is attached to the snowboard. The device includes a  
2 sliding member and a central stud. The central stud couples  
3 the sliding member to the rail section.

4 French Patent No. 2,715,861 teaches a single central  
5 bolt which anchors a base plate of a snowboard. A C-shaped  
6 piece is anchored in the snowboard.

7 European Patent No. 351,298 teaches a device for  
8 positioning longitudinally a snowboard binding on a  
9 snowboard. U. S. Patent No. 5,660,410 teaches a snowboard  
10 binding system. U. S. Patent No. 5,261,689 and U. S. Patent  
11 No. 5,356,170 also teach other snowboard binding systems of  
12 a popular type that which employ a hold-down disk that  
13 engages a circular opening in a boot mounting plate whose  
14 bottom is supported on a snowboard. Vertical bores through  
15 the hold-down disk allow it to be secured to threaded bores  
16 in the board using threaded bolts or screws, and ordinarily  
17 there are extra pairs of threaded bores in the board to  
18 allow adjustment between the fore and aft bindings in

1 several different longitudinal positions, to accommodate the  
2 desired feet-apart stance of the rider. There are ridges or  
3 splines on the hold-down disk that engage complementary  
4 ridges or splines on the binding plate, to secure the plate  
5 at a given angular orientation. This will allow angular  
6 adjustment of the bindings, but unfortunately, to accomplish  
7 this, several bolts per hold-down disk, usually four, must  
8 be loosened using a suitable tool in order to loosen the  
9 disk sufficiently from the plate to allow rotation of the  
10 plate to a new orientation. The fasteners must then be  
11 retightened. ~~The bindings system of U. S. Patent No.~~  
12 ~~5,004,654 requires tightening and loosening only a single~~  
13 ~~bolt.~~ Unfortunately, while the systems shown in above-  
14 mentioned patents allow angular adjustment, they share the  
15 major drawback in not allowing such adjustment to be made  
16 quickly, easily and conveniently, because they require  
17 removal of the boot from the bindings in each case, and the  
18 use of tools to loosen and tighten the fasteners.

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1           U. S. Patent No. 5,354,088 teaches a snowboard binding  
2   which can be rapidly and easily removed from the board,  
3   should this be a solution to the above-discussed problems,  
4   but this disclosure does not show a means for rapidly  
5   adjusting the angle of the bindings. Relatively recent  
6   approaches to the need for rotatably adjustable bindings are  
7   revealed in U. S. Patent No. 5,277,635 which teaches a  
8   system which is suited for use on water ski boards, however  
9   it appears that the locking mechanism would not be adequate  
10   for use in a snowboard environment. U. S. Patent No.  
11   5,499,837 teaches a locking mechanism which depends on  
12   specially formed vertically opposed undulating surfaces that  
13   can be brought in and out of engagement and which appears  
14   complex and expensive.

15   SUMMARY OF INVENTION

16           The present invention is generally directed to an  
17   adjustable mount for a snowboard binding. A snowboard is of  
18   a sandwich construction and includes a polyethylene base, a

1 first fiberglass layer, a wood core, a second fiberglass  
2 layer and a plastic top sheet. The snowboard has a center-  
3 line. The snowboard binding includes a binding base plate  
4 and a disc. The binding base plate is disposed on the  
5 snowboard. The disc has a center-line and a bottom surface.  
6 The disc is rotatably coupled to the binding base plate.

7 In a first separate aspect of the present invention,  
8 the snowboard has a channel which longitudinally extends  
9 along the center-line in the wood core, the second  
10 fiberglass layer and the plastic top sheet thereof. The  
11 mount includes a rail. The rail is disposed in the channel  
12 and is fixedly coupled thereto. The rail has two parallel  
13 series of notches. The locking mechanism securely couples  
14 the rail to the disc.

15 Other aspects and many of the attendant advantages will  
16 be more readily appreciated as the same becomes better  
17 understood by reference to the following detailed  
18 description and considered in connection with the

1 accompanying drawing in which like reference symbols  
2 designate like parts throughout the figures.

3 The features of the present invention which are  
4 believed to be novel are set forth with particularity in the  
5 appended claims.

6 BRIEF DESCRIPTION OF THE DRAWING

7 Fig. 1 is an exploded perspective drawing of a  
8 snowboard, a snowboard binding including a binding base  
9 plate and a disc and an adjustable mount including a rail  
10 and a locking mechanism including a lock plate and two  
11 handles each of which has a safety tab.

12 Fig. 2 is a perspective drawing of the disc of Fig. 1.

13 Fig. 3 is a perspective drawing of the disc of Fig. 1  
14 after the disc has been turned over.

15 Fig. 4 is a perspective drawing of the rail of Fig. 1.

16 Fig. 5 is a perspective drawing of the lock plate of  
17 Fig. 1.

18 Fig. 6 is a schematic drawing of the locking mechanism

1 of Fig. 1 when locked with the safety tabs engaged.

2 Fig. 7 is a schematic drawing of the locking mechanism  
3 of Fig. 1 when locked with the safety tabs disengaged.

4 Fig. 8 is a schematic drawing of the locking mechanism  
5 of Fig. 1 when unlocked.

6 Fig. 9 is a schematic drawing of the locking mechanism  
7 of Fig. 1 when unlocked and released.

8 Fig. 10 is an exploded perspective drawing of a disc of  
9 a snowboard binding and two locking levers of a locking  
10 mechanism.

11 Fig. 11 is a schematic drawing of the locking mechanism  
12 of Fig. 10 when locked.

13 Fig. 12 is a schematic drawing of the locking mechanism  
14 of Fig. 10 when unlocked and released.

15 Fig. 13 is a partial, exploded perspective drawing of a  
16 snowboard, a snowboard binding including a binding base  
17 plate and a disc and an adjustable mount including a rail.

18 Fig. 14 is a perspective drawing of the disc of Fig. 13

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1 after the disc has been turned over.

2 Fig. 15 is an exploded perspective drawing of a  
3 snowboard, a snowboard binding including a binding base  
4 plate, a disc and a lock plate.

5 Fig. 16 is an exploded perspective drawing of a  
6 snowboard binding including a binding base plate and a disc  
7 and an adjustable mount including a rail and a locking  
8 mechanism including a lock plate and slider-bolts according  
9 to the fifth embodiment.

10 Fig. 17 is a perspective drawing of the rail of Fig.  
11 16.

12 Fig. 18 is a side elevation view of the rail of Fig.  
13 16.

14 Fig. 19 is a side elevation view of one of the slider-  
15 bolts of Fig. 16.

16 Fig. 20 is a front elevation view of one of the slider-  
17 bolts of Fig. 16.

18 Fig. 21 is a side elevation view of the lock plate of

1 Fig. 16.

2 Fig. 22 is a side elevation view of the lock plate of  
3 Fig. 16 after the lock plate has been turned over.

4 Fig. 23 is an exploded perspective drawing of a  
5 snowboard binding including a binding base plate and a disc  
6 and an adjustable mount including a rail and a locking  
7 mechanism including a lock plate and slider-bolts according  
8 to the first embodiment.

9 DESCRIPTION OF THE PREFERRED EMBODIMENT

10 Referring to Fig. 1 a snowboard 10 is of a sandwich  
11 construction and includes a polyethylene base 11, a first  
12 fiberglass layer 12, a wood core 13, a second fiberglass  
13 layer 14 and a plastic top sheet 15. The snowboard 10 has a  
14 center-line. A channel 16 longitudinally extends along the  
15 center-line in the wood core 13, the second fiberglass layer  
16 14 and the plastic top sheet. A snowboard binding 20  
17 includes a binding base plate 21 and a disc 22. The binding  
18 base plate 21 has a bore 23 with a plurality of inwardly





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1 opposing and parallel series of notches 31.

2 Referring to Fig. 1 in conjunction with Fig. 4 the rail  
3 28 is a flexible member and has two sets of pluralities of  
4 slots 32 each of which extends along its side edges, a key  
5 slot 33 of a rectangular dimension and two opposing and  
6 parallel series of notches 34. The rail 28 is disposed in  
7 the channel 16 and is fixedly coupled thereto. Each  
8 mounting pin 29 includes a cylindrical shaft 35, a flat,  
9 disc-shaped cap 36 and a rectangular base 37. The flat,  
10 rectangular base 37 is of a rectangular dimension slightly  
11 smaller than the rectangular dimension of the key slot 33.  
12 The disc 22 has two bores 38 which are disposed on the  
13 center-line thereof. The bar 30 has two bores 39 each of  
14 which is aligned with one of the bores 38 of the disc 22 to  
15 form two sets of bores 40. The flat, disc-shaped cap 36 is  
16 fixedly coupled to the cylindrical shaft 35 at one end  
17 thereof. When the cylindrical shaft 35 of each mounting pin  
18 29 has been inserted into one of the two sets of bores 40,

1 the flat, rectangular base 37 is fixedly coupled to the  
2 cylindrical shaft 35 at the other end thereof in order to  
3 loosely secure the cylindrical shaft 35 of each mounting pin  
4 29 within one of the two sets of bores 40. Each mounting  
5 pin 29 is slidably coupled to the rail 28 when its flat,  
6 rectangular base 37 is inserted into the key slot 33.

7 Referring to Fig. 1 in conjunction with Fig. 5 a  
8 locking mechanism 50 includes a lock plate 51, a screw 52 of  
9 a diameter, two handles 53, two pins 54. Each handle 53 has  
10 a safety tab 55. The disc 22 has two safety slots 56. Each  
11 pin 54 rotatably couples the one of the handles 53 to the  
12 lock plate 51. Each safety tab 55 is disengageably coupled  
13 to one of the safety slots 56. The disc 22 has a threaded  
14 bore 57 which is axially disposed. The lock plate 51 has a  
15 bore 58 which is axially disposed and which is of a diameter  
16 slightly larger than the diameter of the screw 52. The  
17 screw 52 is inserted into the bore 58 of the lock plate 51  
18 and is then threaded into the threaded bore 57 of the disc

1 22 thereby rotatably coupling the lock plate 51 to the disc  
2 22. The lock plate 51 has two curved ramps 59 which are  
3 oppositely disposed. The cylindrical shaft 35 of each  
4 mounting pin 29 is slidably coupled to one of the curved  
5 ramps 59. The flat, disc-shaped cap 36 of each mounting pin  
6 29 secures it therein.

7 Referring to Fig. 1 in conjunction with Fig. 6 when the  
8 locking mechanism 50 is locked and each safety tab 55  
9 engages one of the safety slots 56. Each series of notches  
10 34 of the rail 28 engages one of the series of notches 31 of  
11 the bar 30 so that the snowboard binding 20 can not be  
12 adjusted longitudinally relative to the snowboard 10.

13 Referring to Fig. 1 in conjunction with Fig. 7 and Fig.  
14 8 when the locking mechanism 50 is locked and each safety  
15 tab 55 has disengaged itself from one of the safety slots  
16 56. A snowboarder may use the handles 53 to rotate the lock  
17 plate 51 in order to unlock it and release the disc 22 from  
18 the binding base plate 21 and the rail 28.

1           Referring to Fig. 1 in conjunction with Fig. 9 and Fig.  
2   8 when the locking mechanism 50 is unlocked and released.  
3   By lifting the disc 22 from the rail each series of notches  
4   34 of the rail 28 is disengaged from one of the series of  
5   notches 31 of the bar 30 so that the snowboard binding 20  
6   can be adjusted longitudinally relative to the snowboard 10.

7           Referring to Fig. 10 in conjunction with Fig. 11 and  
8   Fig. 12 a snowboard binding includes a binding base plate  
9   and a disc 122. The disc 122 has a circular peripheral side  
10   edge 123 with a plurality of outwardly directed, radially  
11   disposed teeth. The disc 122 is lifted away from the  
12   binding base plate so that the binding base plate can be  
13   rotatably adjusted. Once the binding base plate has been  
14   rotatably adjusted the disc is placed on the binding base  
15   plate so that all of the outwardly directed, radially  
16   disposed teeth of the disc 122 engage all of the inwardly  
17   directed, radially disposed teeth of the binding base plate  
18   in order to rotatably lock the binding base plate in place

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1 relative to the disc 122. A mount includes two mounting  
2 pins 129. The disc 122 has a center-line and a bottom  
3 surface. The disc 122 has two bores 138 which are disposed  
4 on the center-line thereof. A locking mechanism 150  
5 includes two locking levers 151 and two screws 152 of a  
6 diameter. The disc 122 has two threaded bores 157 each of  
7 which is disposed adjacent to one of the two bores thereof.  
8 Each locking lever 151 has a bore 158 which is of a diameter  
9 slightly larger than the diameter of each screw 152. Each  
10 screw 152 is inserted into the bore 158 of one of the  
11 locking levers 151 and is then threaded into the threaded  
12 bore 157 of the disc 122 thereby rotatably coupling each of  
13 the locking levers 151 to the disc 122. Each locking lever  
14 151 engages the cylindrical shaft of one of mounting pins  
15 129 in order to lock the disc 122 in place. Each locking  
16 lever 151 disengages itself from the cylindrical shaft of  
17 one of mounting pins 129 in order to unlock the disc 122 in  
18 place so that the snowboard binding can be adjusted

1 longitudinally relative to the snowboard.

2 Referring to Fig. 13 in conjunction with Fig. 14 a  
3 snowboard 210 has a channel 216. A snowboard binding 220  
4 includes a binding base plate 221 and a disc 222. The  
5 binding base plate 221 has a bore 223 with a plurality of  
6 upwardly directed, radially disposed teeth 224. The disc  
7 222 has a circular peripheral side edge 225 with a plurality  
8 of downwardly directed, radially disposed teeth 226. The  
9 disc 222 is lifted away from the binding base plate 221 so  
10 that the binding base plate 221 can be rotatably adjusted.  
11 Once the binding base plate 221 has been rotatably adjusted  
12 the disc 222 is placed on the binding base plate 221 so that  
13 all of the downwardly directed, radially disposed teeth 226  
14 of the disc 222 engage all of the upwardly directed,  
15 radially disposed teeth 224 of the binding base plate 221 in  
16 order to rotatably lock the binding base plate 221 in place  
17 relative to the disc 222. A mount 227 includes two rails  
18 228 and two mounting pins.

1        Still referring to Fig. 13 in conjunction with Fig. 14  
2        the disc 222 has a center-line and a bottom surface. Two  
3        bars 230 are oppositely and parallelly disposed on the  
4        bottom surface of the disc 222 about the center-line thereof  
5        and are fixedly coupled thereto. Each bar 230 has a series  
6        of downwardly directed notches 231. The rails 228 are  
7        disposed in the channel 216 and is fixedly coupled thereto.  
8        Each rail 228 has a series of upwardly directed notches 242.

9        Referring to Fig. 15 a snowboard 310 is of a sandwich  
10       construction and includes a polyethylene base, a first  
11       fiberglass layer, a wood core, a second fiberglass layer and  
12       a plastic top sheet 315. The snowboard 310 has a center-  
13       line. Two parallel and opposing series of threaded bores  
14       316 longitudinally extend about the center-line in the  
15       snowboard 310. A snowboard binding 320 includes a binding  
16       base plate 321 and a disc 322. The binding base plate 321  
17       has a bore 323 with a plurality of inwardly directed,  
18       radially disposed teeth 324. The disc 322 has a circular



1 peripheral side edge 325 with a plurality of outwardly  
2 directed, radially disposed teeth 326. The disc 322 is  
3 lifted away from the binding base plate 321 so that the  
4 binding base plate 321 can be rotatably adjusted. Once the  
5 binding base plate 321 has been rotatably adjusted the disc  
6 322 is placed on the binding base plate 321 so that each of  
7 the outwardly directed, radially disposed teeth 326 of the  
8 disc 322 engages one of the inwardly directed, radially  
9 disposed teeth 324 of the binding base plate 321 in order to  
10 rotatably lock the binding base plate 321 in place relative  
11 to the disc 322.

12 Still referring to Fig. 15 a locking mechanism 350  
13 includes a lock plate 351, four screws 352. The disc 322  
14 has a center axis and four threaded bores 357 each of which  
15 is disposed about the center axis thereof. The lock plate  
16 351 has a center axis and four bores 358 each of which is  
17 disposed about the center axis thereof. Each bore 358 of  
18 the lock plate 351 is of a diameter slightly larger than the

1 diameter of one of the screws 352. Each screw 352 is  
 2 inserted into one of the four bores 358 of the lock plate  
 3 351 and is then threaded into one of the four threaded bores  
 4 357 of the disc 322 thereby coupling the lock plate 351 to  
 5 the disc 322. The lock plate 351 has four curved slots 359  
 6 which are disposed about the center axis thereof. Each  
 7 curved slot 359 has within it a curved ramp 360. Each  
 8 curved slot 359 is disposed adjacent and contiguous to one  
 9 of the four bores 358 of the lock plate 351. The lock plate  
 10 351 has a handle 361. A snowboarder may use the handle 361  
 11 to rotate the lock plate 351 in order to unlock it and  
 12 release the disc 322 from the binding base plate 320. The  
 13 snowboard binding of U. S. Patent No. 5,261,698 includes a  
 14 hold-down plate and a binding base plate. The hold-down  
 15 plate is fixed to the snowboard by four screws extending  
 16 through a set of four holes in the hold-down plate. The  
 17 binding base plate can be rotated relative to the hold-down  
 18 plate. The binding base plate and the hold-down plate each

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1 have ribs or ridges, respectively, which lock the angular  
2 position of the binding base plate relative to the hold-down  
3 plate. The rotational position of the binding base plate  
4 can only be adjusted by removing the boot from the binding  
5 base plate and disengaging the screws from the holes in the  
6 hold-down plate. The disc 322 and the lock plate 351 may  
7 replace the hold-down plate. Similarly two snowboard  
8 bindings 320 each of which includes the binding base plate  
9 321, the disc 322 and the lock plate 351 may be used with  
10 the snowboard which Revelation Snowboard makes. The  
11 snowboard has two sets of two parallel tracks and two sets  
12 of four T-nuts. Each set of the four T-nuts float within  
13 one of the two sets of the two parallel tracks and  
14 mechanically couples one of two snowboard bindings 320 to  
15 one of the two sets of the two parallel tracks. Revelation  
16 Snowboard has a trademark, FREEDOM GROOVE, and a patent  
17 pending for its snowboard.

18 Referring to Fig. 16 in conjunction with Fig. 17 and

1 Fig. 18 an adjustable mount 410 includes a rail 411 and a  
2 locking mechanism 412. The rail 411 has a key-slot 413 and  
3 a plurality of teeth 414. The rail is coupled to a  
4 snowboard. The locking mechanism 412 includes a lock plate  
5 415 and a disc 416, two slider-bolts 417 and two t-nuts 418.  
6 The lock plate 415 has a post 419 and protrusions 420. The  
7 post 419 and protrusions 420 are disposed on the underside  
8 of the lock plate 415. A snowboard binding includes a  
9 binding base plate 421. The adjustable mount 410 couples  
10 the binding base plate 421 of the snowboard binding to the  
11 rail 411 on the snowboard.

12 Referring to Fig. 16 in conjunction with Fig. 19 and  
13 Fig. 20 the adjustable mount 410 is secured by using the  
14 slider-bolts 417 which are inserted into the key-slot 413  
15 and engage the rail 411 by means of the teeth 414 of the  
16 rail 411. Once the slider-bolts 417 are engaged within the  
17 teeth 414 of the rail 411 the binding base plate 421 is  
18 attached by means of holes located in a central bore of the

1 binding base plate 421. The disc 416 is used to help secure  
2 the binding base plate 421 to the rail 411 by means of t-  
3 nuts 418 which are attached to the slider-bolts 417 at their  
4 threaded protrusions. A raised central bar of each slider-  
5 bolt 417 allows enough space between the binding base plate  
6 421 and the rail 411 so that the binding base plate 421 can  
7 freely move the length of the rail 411. The locking  
8 mechanism 412 also includes a spring 422 and a ring 423.

9 Referring to Fig. 16 in conjunction with Fig. 21 and  
10 Fig. 22 movement of the binding base plate 421 along the  
11 rail 411 is controlled incrementally by the protrusions 420  
12 of the lock plate 415 which is housed in the central bore of  
13 the binding base plate 421. The protrusions 421 extend  
14 through the holes and interlock with the teeth 414 of the  
15 rail 411. The protrusions 420 are held secure by the spring  
16 422. The spring 422 applies downward pressure to the lock  
17 plate 415. The protrusions 420 must be disengaged from the  
18 teeth 414 in order to move the binding base plate 421 along

1 the rail 411. Disengagement is accomplished by the lifting  
2 the ring 423. The ring 423 is attached to the lock plate  
3 415 by means of the post 419. Once disengaged the binding  
4 base plate 421 is free to move along rail 411. When the  
5 ring 423 is released the spring 422 forces the protrusions  
6 420 to secure themselves in the teeth 414 of the rail 411  
7 disallowing any further movement of the binding base plate  
8 421 along the rail 411.

9 Referring to Fig. 23 an adjustable mount 510 includes a  
10 rail 511 and a locking mechanism 512. The rail 511 has a  
11 key-slot 513 and a plurality of teeth 514. The rail is  
12 coupled to a snowboard. The locking mechanism 512 includes  
13 a lock plate 515 and a disc 516, two slider-bolts 517, two  
14 gear-nuts 518 and a main gear 519. The main gear 519  
15 engages both of the two gear-nuts 518. A snowboard binding  
16 520 includes a binding base plate 521. The adjustable mount  
17 510 couples the binding base plate 521 of the snowboard  
18 binding 520 to the rail 511 on the snowboard.

1 Still referring to Fig. 23 the adjustable mount 510 is  
2 secured by using the slider-bolts 517 which are inserted  
3 into the key-slot 513 and engage the rail 511 by means of  
4 the teeth 514 of the rail 511. Once the slider-bolts 517  
5 are engaged within the teeth 514 of the rail 511 the binding  
6 base plate 521 is attached by means of holes located in a  
7 central bore of the binding base plate 521. The disc 516 is  
8 used to help secure the binding base plate 521 to the rail  
9 511 by means of gear/nuts 518 which are threadedly coupled  
10 to the slider-bolts 517 at their threaded protrusions. A  
11 raised central bar of each slider-bolt 517 allows enough  
12 space between the bindings base plate 521 and the rail 511  
13 so that the binding base plate 521 can freely move the  
14 length of the rail 511. The main gear 519 has a slot 551.  
15 The locking mechanism 512 also includes handles 553 which  
16 engage the slot in the main gear 519. When the locking  
17 mechanism 512 is locked a snowboarder may use the handles  
18 553 to rotate the lock plate 51 in order to unlock the

1 locking mechanism 512 and release the disc 522 from the  
2 binding base plate 521 and the rail 28.

3 Referring again to Fig. 1, Fig. 16 and Fig. 23 the  
4 rails 28, 411 and 511 both flexible members. This is an  
5 essential feature of the adjustable mounts 10, 410 and 510  
6 when they are used to couple binding base plate 21, 421 and  
7 521, respectively, to a snowboard 11.

8 From the foregoing it can be seen that a longitudinally  
9 adjustable mount for a snowboard binding has been described.  
10 It should be noted that the sketches are not drawn to scale  
11 and that distances of and between the figures are not to be  
12 considered significant.

13 Accordingly it is intended that the foregoing  
14 disclosure and showing made in the drawing shall be  
15 considered only as an illustration of the principle of the  
16 present invention.